in effect, sodium bicarbonate is being given. The administration of Ringer's lactate may have the same potential for complications as does sodium bicarbonate.

The administration of potassium in the form of potassium phosphate is also advised by Kaufman and his co-workers. This recommendation is logical because phosphate depletion is significant in diabetic ketoacidosis. The consequences of hypophosphatemia are partly reflected by deficiency of 2,3-DPG. However, the need for supplemental phosphate in the treatment of diabetic ketoacidosis has not been thoroughly investigated and phosphate solutions have usually not been administered to such patients at CHLA.

Acute cerebral edema has been an almost uniformly fatal complication of diabetic ketoacidosis in children and adolescents.1,2,10 Although its pathogenesis is not fully understood, rapid return of the blood glucose concentration and pH to normal, increase in the polyol-pathway activity, insulin-induced alterations in intracellular binding of electrolytes in brain and excessive rates of intravenous fluid administration have been implicated.1,2,10 It is probable that no single factor is responsible. It is our practice to administer glucose-free solutions if the blood glucose level exceeds 500 mg per 100 ml, to administer 5 percent glucose when the blood glucose concentration is less than 500 mg per 100 ml, and to give 10 percent glucose when the blood glucose level falls to 250 mg per 100 ml or less. No instance of fatal cerebral edema due to diabetic ketoacidosis has occurred at CHLA since 1965 following our treatment regimen.¹⁰ Hypoglycemia resulting in prolongation and exacerbation of the ketoacidotic state has also been avoided by these recommendations. The rate of fall of plasma glucose was the same when the results of smaller doses of insulin were compared with results of larger doses.7,11

The goals of treatment of diabetic ketoacidosis are to control the diabetic state promptly with insulin and to restore deficits of water and electrolytes with the administration of intravenous fluids and electrolytes. In the hands of experienced physicians, the use of "small" or "large" doses of insulin appears to be equally effective in achieving a satisfactory outcome. Regardless of the insulin regimen, hypoglycemia and hypokalemia may occur. Blood glucose, potassium and pH must be measured frequently to assess whether the amount and rate of administration of glucose,

fluid, electrolytes and insulin require readjustment. The successful management of diabetic ketoacidosis appears to depend more on the quality of care and how well therapy is individually tailored to each patient than on any specific form of treatment currently available.

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REFERENCES

- 1. Young E, Bradley RF: Cerebral edema with irreversible coma in severe diabetic ketoacidosis. N Engl J Med 276:665-669, Mar 23, 1967
- 2. Duck SC, Weldon VW, Pagliaia AS, et al: Cerebral edema complicating therapy for diabetic ketoacidosis. Diabetes 25:111-115, Feb 1976
- 3. Smith CS, Hudson FP: Mortality in juvenile diabetes mellitus over 25 years. Arch Dis Child 51:297-300, Apr 1976
- 4. Kaufman IA, Keller MA, Nyhan WL: Diabetic ketosis and acidosis: The continuous infusion of low doses of insulin. J Pediatr 87:846-848, Nov 1975
- 5. Martin MM, Martin ALA: Continuous low-dose infusion of insulin in the treatment of diabetic ketoacidosis in children. J Pediatr 89:560-564, Oct 1976
- 6. Vesser TE, Glines MH, Niederman LG, et al: Low-dose intravenous insulin therapy for diabetic ketoacidosis in children. Am J Dis Child 131:308-310, Mar 1977
 7. Drop SLS, Duval-Arnold BJM, Gober AE, et al: Low-dose
- intravenous insulin intusion versus subcutaneous insulin injection: A controlled comparative study of diabetic ketoacidosis. Pediatrics 59:733-738, May 1977

 8. Felig P: Insulin: Rates and routes of delivery. N Engl J Med 291:1031-1032, Nov 7, 1974
- 9. Madison LL: Low-dose insulin: A plea for caution. N Engl J Med 294:393-394, Feb 12, 1976
- 10. Kogut MD: Pathogenesis, diagnosis and treatment of diabetic ketoacidosis, In Current Problems in Pediatrics VI:1-35, Feb 1976
- 11. Soler NG, Wright AD, Fitzgerald MG, et al: Comparative study of different insulin regimens in management of diabetic ketoacidosis. Lancet 2:1221-1224, Dec 20, 1975
- 12. Nelson WE, Vaughn VC, McKay RJ: Nelson Textbook of Pediatrics, 10th Ed., Philadelphia, W.B. Saunders, 1975, p 1803

Force and Counterforce

THE HARSHNESS of Secretary Califano's recent statement before the AMA House of Delegates in San Francisco sharpens further the adversary relationship which has been developing for some time between medicine and the health care system on the one hand, and our government on the other. The Secretary implied nothing less than that the federal government has determined to use whatever force is necessary to bring the medical profession to the federal heel and health care costs to federal control. His assumptions appeared to be that the federal government has the power to do this, that there will be no opposition to doing it (except from doctors who number only one in a thousand of the population), and that the federal bureaucracy can in fact control health care costs and still provide the services our citizens expect and to which they have a right (according to the federal edict)—especially when they, the citizens, are sick or believe themselves to be so.

Any threat or use of force gives rise to the possibility and often a pragmatic need for a balancing counterforce. And so it would seem the time has come for medicine and the health care system to develop some counterforce in the public arena. To date the strategy and tactics (such as they have been) have been mostly defensive, responding with defensive measures at various points of attack as these have appeared. The overall result has been a general retreat, with victories infrequent and usually short-lived. Few of the pressing problems have been solved, in fact they have been intensified and a great deal of position and territory has been lost.

The Secretary threw down a gauntlet. He proposes to use whatever force is necessary to achieve the government's purposes. A spokesman for the AMA is quoted as responding by calling on organized medicine to unite in its opposition to governmental bureaucracy as a "cancerous, relentless, mindless blob of a force that oozes through the cracks and seeps under the doors, and as soon as you stop it in one direction it creeps in on you from another." But is this sort of picturesque rhetoric the kind of counterforce that is needed? Organized medicine is already united in opposition to governmental bureaucracy in health care, if in nothing else, and much of the country feels the same way. But to be united is one thing and to do something about it is another. Where is the counterforce, or where are the counterforces that will undermine the strength of the power which is being exercised in so cavalier a fashion? Where are the better solutions, or even better approaches to solutions, for the evident and pressing problems in health care which are at the real root of it all?

An adversary situation between government and the health care system has developed. A callous and impersonal bull, in the form of federal determination and federal regulation, is about to smash its way into a china shop of delicate, often costly, and very personal human needs and human relationships of the citizenry of this nation. Only havoc can ensue. Both in nature and among men,

force must give rise to counterforce if there is to be any kind of stability. What might be such a counterforce? The federal bureaucracy has many soft spots, many weaknesses. There are many skeletons in its bureaucratic closets; sluggishness, inflexibility and unresponsiveness are fatal flaws for the regulation of anything so personal and sensitive as health care. Public ridicule is the nemesis of any government bureaucracy. Public exposure to ridicule of some of the skeletons, the weaknesses and the failures might well turn the federal monster in upon itself, consume much of its energy in trying to cover up for its failings, and so greatly weaken its destructiveness in the china shop.

But this alone will not be enough, even if effectively accomplished. A further counterforce will be needed. The health care enterprise will need to develop its own solutions to the evident and pressing problems-solutions that it can live with and make work to solve the problems. And to do this it will need the help rather than the domination of government. The bull must be tamed. The adversary relationship of medicine and the health care system on the one hand and our government on the other must sooner or later be discarded by both parties in the interests of patients who need care and citizens who may become patients. Force and counterforce are not the real answer. Both produce havoc in the china shop—the havoc of expensive and destructive waste. But this is what is happening now and it bodes to continue until emotion subsides and greater reasonableness is restored.

It would appear that the long-range strategy should be to agree that the public and private sectors of society must work together with genuine openness, candor and cooperation. It should be agreed that there are problems, what the problems are and on how best to approach the problems, without destroying in the process too many of the priceless articles in the china shop—delicate and costly human needs and human relationships which we call health care. The sooner this step can be taken the better it will be for the people of this nation. The leadership must come from the private sector and from government. Will it? The situation calls, yes cries out, for a high order of professional and public approval — and thanks — for these statesmen.

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